

SONY®

Operating Instructions

SEG-1A

SPECIAL-EFFECTS GENERATOR

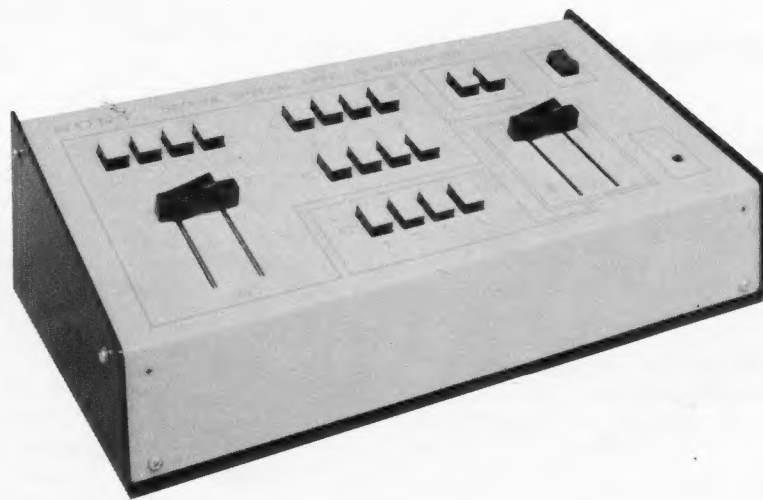
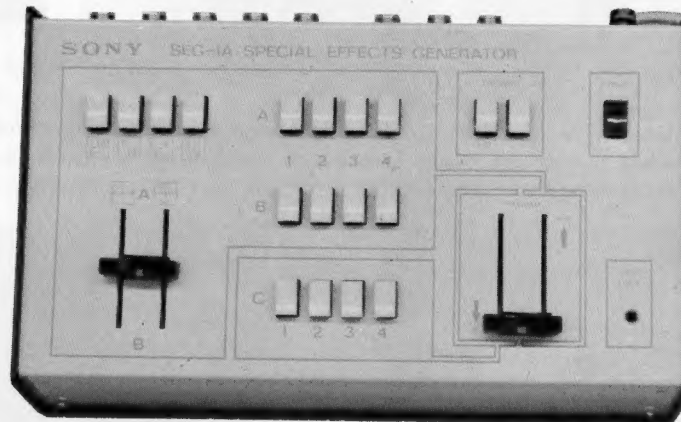


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SPECIAL-EFFECTS GENERATOR SEG-1A



INTRODUCTION

The special-effects generator is the nucleus of the video studio. It is capable of providing not only several source-switching techniques but also a variety of special and unusual time-shared displays. The technical director operates the controls; he monitors the inputs on preview monitors and selects the source(s) that appears at the line output as displayed on the program monitor.

Features of special-effects generators are generally classified into two groups: (a) mixer functions and (b) effects functions. Mixer functions include switches, lap dissolves, fades (to or from black) and superimposures (supers). Switches are accomplished by the source selectors. Both fades and supers are variations of the lap dissolve and these are accomplished by the two fader controls, which set the A and B bus input levels in inverse proportion.

Effects functions comprise horizontal and vertical wipes and corner inserts. These functions involve some form of electronic switching of the two inputs at the field or line rate to achieve the desired effect. The horizontal and vertical wiper controls individually set the transition point between the switched signals or, when used together, determine the boundaries of the corner insert.

GENERAL DESCRIPTION

The Sony Model SEG-1A is a four-input special-effects generator that provides all the common switching and special effects for a small studio. It is housed in an attractive cabinet with a sloping front panel. The unit accommodates up to four composite video inputs. All video input receptacles are Hirschmann 6-pin type.

Vertical interval switching is used in the switcher/fader to obtain noise-free electronic switching. Split fader arms allow a high degree of programming flexibility.

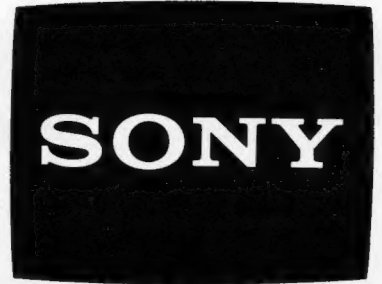
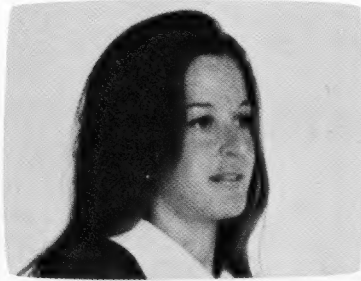
The optional gen-lock feature enables the use of a video tape recorder as an input source. Thus, the playback of a recorded tape may be mixed with live cameras to provide several interesting effects formerly possible only with costlier units.

The special-effects generator provides corner inserts and horizontal and vertical wipes. The operator can select any two of four inputs to originate the desired effect. The output of the effects amplifier is supplied back to a switcher/fader input that is always delegated for that purpose.

GLOSSARY

SWITCH

instantaneous transition between two video sources. Any two of up to four inputs may be selected by the source selector.



LAP DISSOLVE

a gradual transition between two video sources at a rate determined by the operator. Any two of the inputs may be dissolved, from either source to the other or to the effects amplifier.

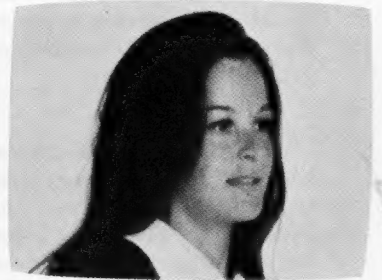
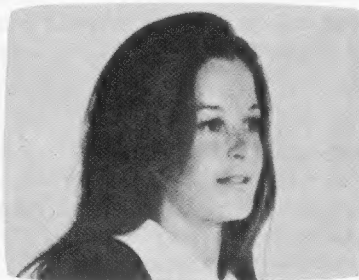
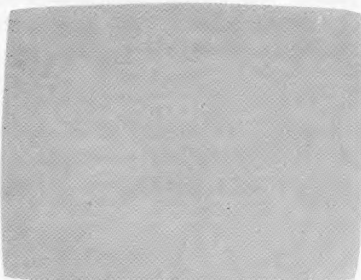


FADE

a gradual transition from video to or from black (no signal) at a rate determined by the operator. A lap-dissolve to or from black is a fade.

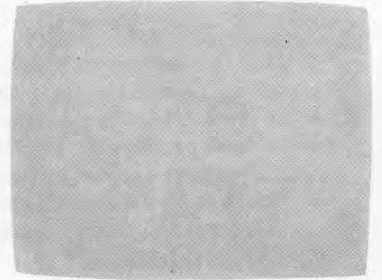
FADE IN

transition from black to video



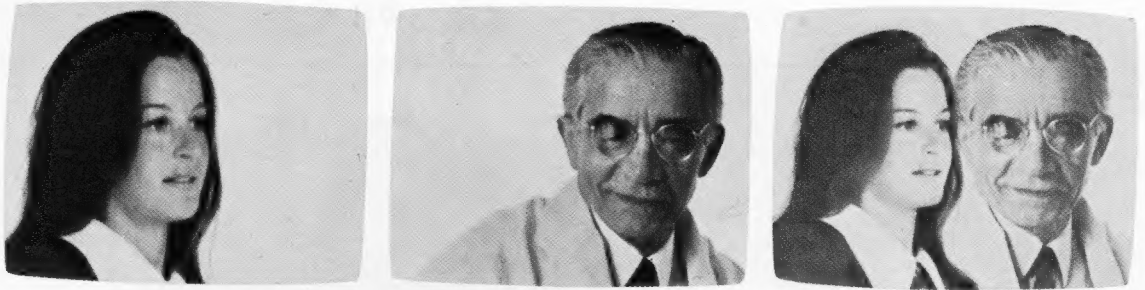
FADE OUT

Transition from video to black.



**SUPERIMPOSURE
(SUPER)**

overlay of one video signal upon another. The midposition of a lap-dissolve is a super. Any two inputs may be superimposed upon each other.



WIPE

side-by-side or top-to-bottom display of two video signals within one field.

HORIZONTAL WIPE

side-by-side display of two video signals within one field. Any two sources may be displayed side-by-side (horizontally-split screen).



VERTICAL WIPE

top-to-bottom display of two video signals within one field. Any two sources may be displayed one above the other (vertically-split screen).

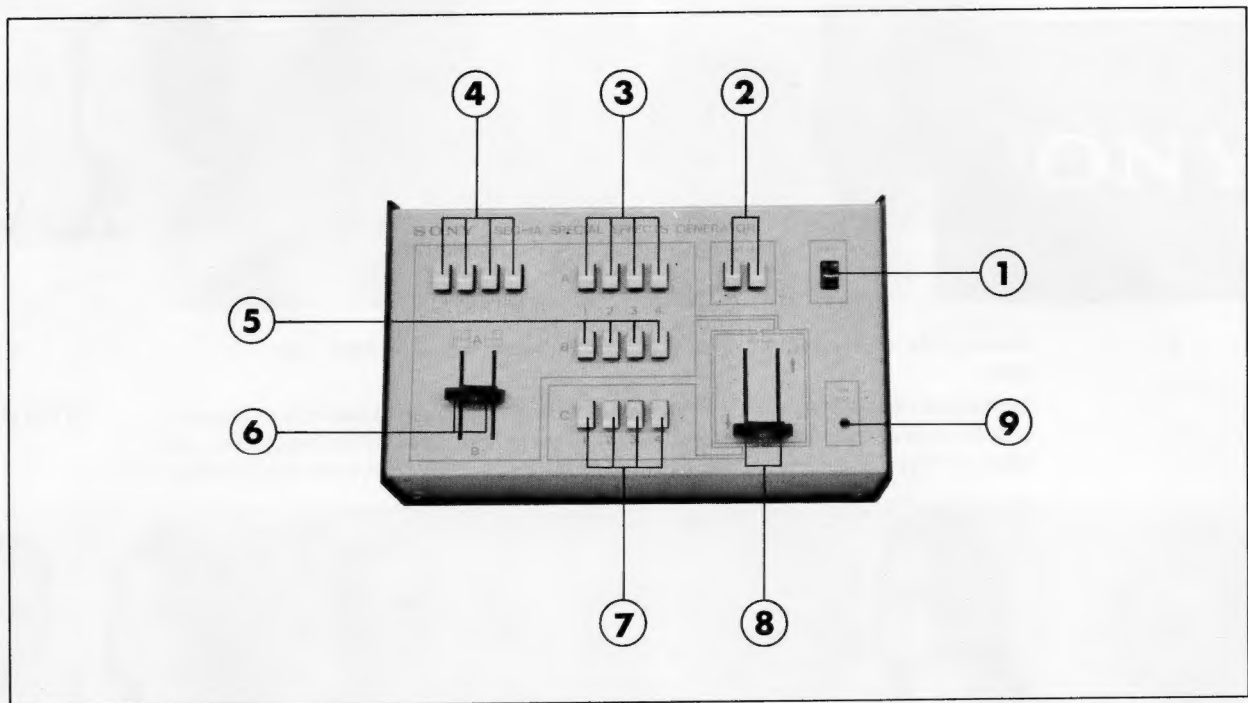


CORNER INSERT

display of one video signal in the corner of another video signal. Any source may be displayed in the corner of any other source.

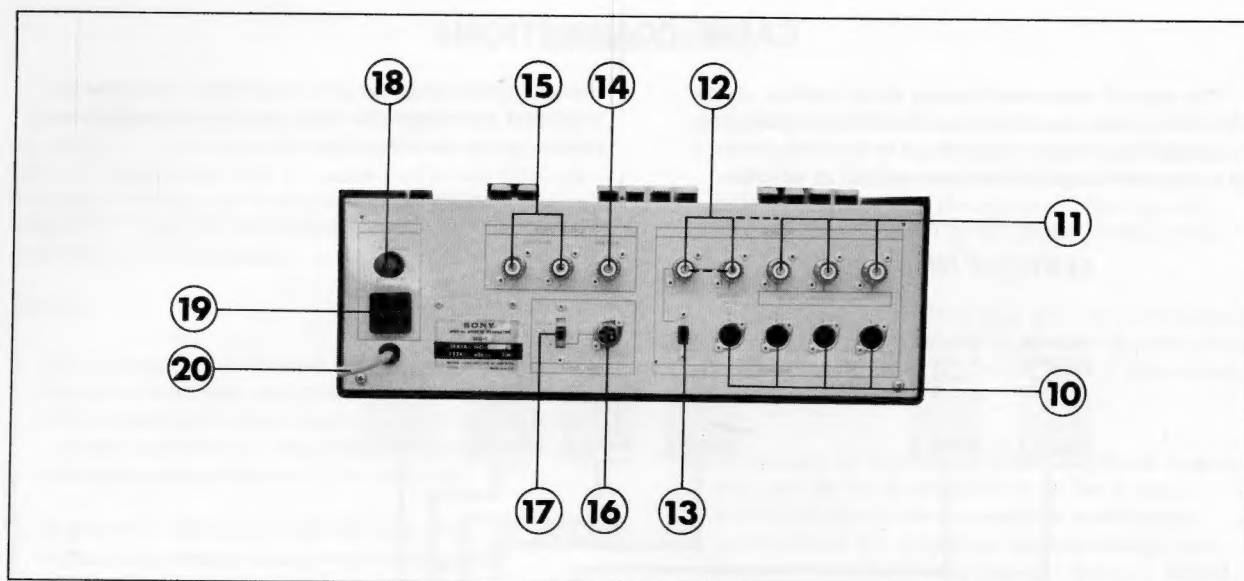


LOCATION OF CONTROLS AND CONNECTORS



FRONT PANEL

- ① **POWER Switch** - turns the unit on or off. The switch will light when power is applied.
 - ② **PREVIEW Selector** - feeds the output of the effects amplifier (A and/or B bus) or the selected input on the C bus to the preview monitor.
 - ③ **A-Bus Input Selector** - feeds the selected input to the A-Bus effects amplifier.
 - ④ **EFFECTS Selector** - selects the corner insert depicted on the respective button. Split-screen effects are accomplished by these buttons and splitting the wiper controls appropriately. See ⑥
 - ⑤ **B-Bus Input Selector** - feeds the selected input to the B-Bus effects amplifier.
 - ⑥ **Wiper Controls** - control the horizontal and vertical boundaries between A and B buses for wipes, or corner inserts. The left control positions the vertical boundary; the right control positions the horizontal boundary.
 - ⑦ **C-Bus Input Selector** - feeds the selected input to the C-bus mixer amplifier.
 - ⑧ **Fader (PROGRAM) Controls** - control the levels of the signals applied to the A/B (effects) and C (mixer) amplifiers. The left knob controls the level of the C signal; maximum level is in the lower position, minimum level is in the upper position. The right knob controls the level of the A/B signal; maximum level is in the upper position, minimum level is in the lower position. The two knobs are operated together to achieve lap dissolves.
- Note:** These are independent controls coupled together to simplify simultaneous operation. To operate the controls independently, lift the lock to the right. The normal operating position is with the lock in place.
- ⑨ **GEN-LOCK indicator** - indicates the presence of a source at the gen-lock input (video input 4) and that the source is locked.



REAR PANEL

- ⑩ Input Receptacles (CAMERA 1, 2, 3, 4) - accept the output of Sony or other cameras equipped with mating 6-pin receptacles. Use Sony CCF-series cables for connection.
- ⑪ MONITOR Receptacles - supply video output to monitor respective camera inputs 1 - 4. Do not terminate these outputs at the monitor. Monitor 4 also functions as the gen-lock input (See ⑫).
- ⑫ GEN-LOCK Input (Monitor output) - accepts the output of a VTR at either of the ganged UHF inputs. Either of the receptacles may be used as a monitor output (for the other UHF receptacle or for the 6-pin Camera 4 receptacle).
- ⑬ Terminator Switch (75Ω/LOOP-THRU) - terminates the gen-lock input (monitor output ⑫). Monitor 4 generally terminates input 4 (whether it be camera input or VTR gen-lock input), therefore this switch is normally set to LOOP-THRU. However, if monitor 4 is not used, set the switch to 75Ω. Refer to Cable Connection diagrams.
- ⑭ PREVIEW VIDEO OUTPUT - supplies the output of the A/B or C bus, as selected by the PREVIEW Selector (2), to the preview monitor.
- ⑮ PROGRAM VIDEO OUTPUT - supplies the line output of the system to a monitor and/or a video tape recorder. Two outputs are provided.
- ⑯ SYNC INPUT Receptacle - accepts vertical and horizontal drive pulses from an external sync generator.
- ⑰ SYNC INPUT Selector - selects the source of sync for the system as follows:

INT: synchronizes all inputs to the internal crystal-controlled sync generator.

GEN LOCK: synchronizes inputs 1 to 3 to the gen-lock input 4.

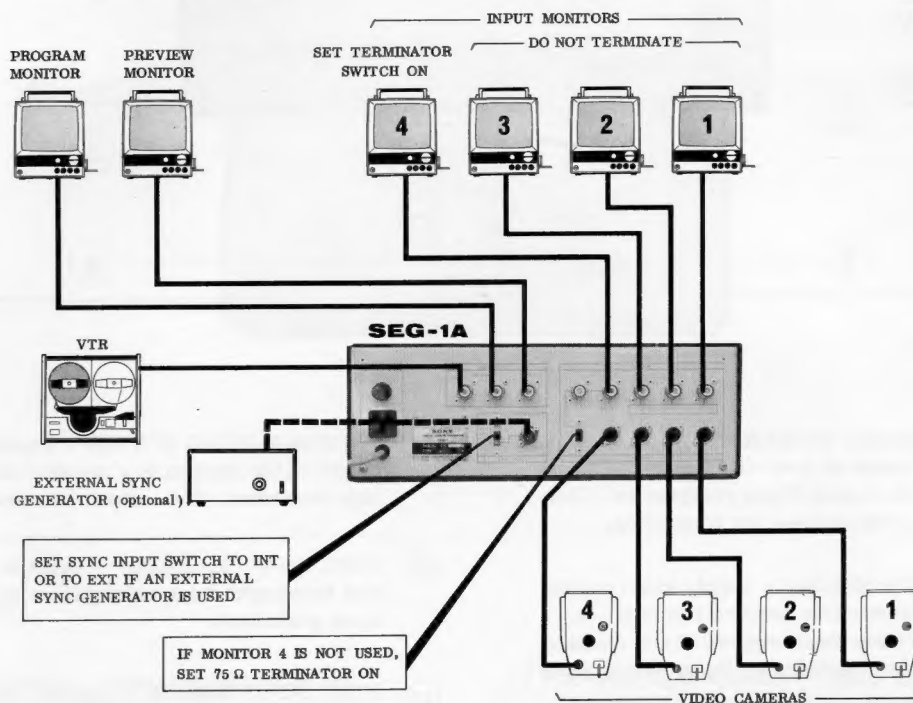
EXT: synchronizes all inputs to the external sync generator connected at the SYNC INPUT receptacle.
- ⑱ FUSE - contains a 1/2 ampere slo-blo cartridge fuse (3AG).
- ⑲ Convenience Outlet - supplies 117 V AC at up to 3 amperes. This outlet is not fused.
- ⑳ Power Cord - connect to a 117 V AC 3-wire outlet.

CABLE CONNECTIONS

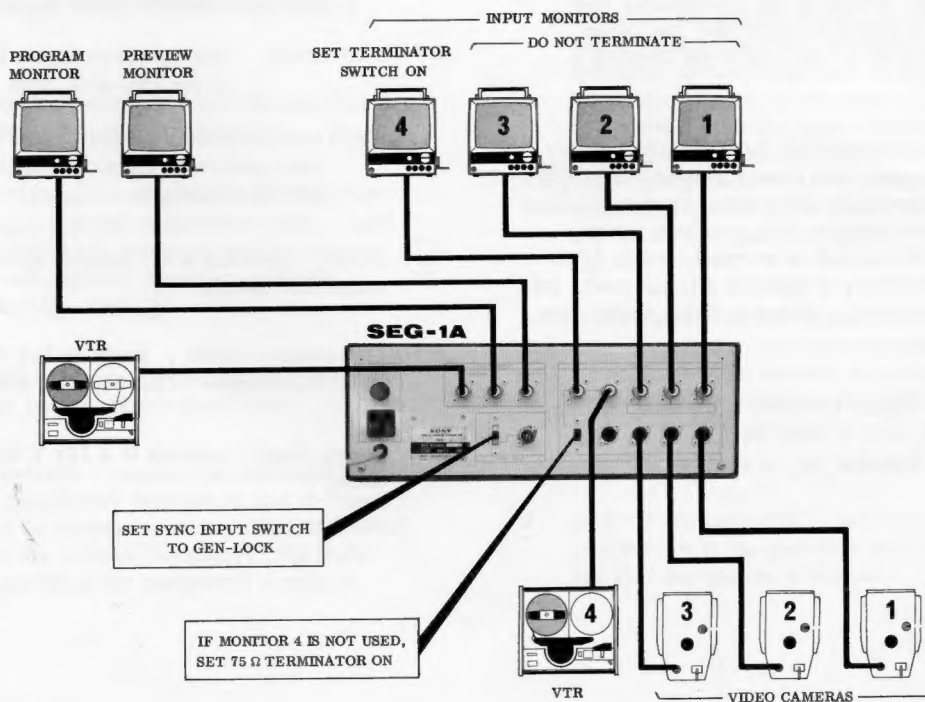
The typical equipment setups shown utilize virtually all the features of the special-effects generator. Video and sync input connections to the SEG-1A may be made with Sony CCF-series cables of suitable

length (RGC cable for gen-lock input) available as optional accessories. RGC-series cables (optional) are used as output cables.

REGULAR OPERATION



GEN-LOCK OPERATION



OPERATION

Complete the connections to all equipment as shown on page 6. An external sync generator (Sony Model CG-1 or equivalent) may be connected to the SEG-1A to supply vertical and horizontal drive pulses, 2-6 volts negative. Plug the unit into a convenient 3-wire outlet and turn on all equipment.

NOTE:

1. The procedures described herein presume that all cameras have been set up and matched prior to operation according to the manufacturer's instructions. Camera matching is simplified through the use of the split-screen feature of the SEG-1A.
2. If power is interrupted during operation, the selected inputs may change when power is reapplied.

MIXER AMPLIFIER FUNCTIONS

(Circled numbers refer to the callouts in the illustration on page 4).

Switching

Switching is generally performed on the C bus although the A or B bus may be used if necessary. Set the Fader Controls ⑧ to C and select the source using the C Bus Input Selector ⑦. To switch on the A or B bus, set the Fader Controls ⑧ to A/B and choose the source by means of the A-or B-Bus Input Selectors ③ or ⑤ corresponding to the position of the Wiper Controls ⑥, which must be in either extreme position.

Fading

The special-effects generator may be used to

- (a) dissolve one signal to another
- (b) dissolve a signal to or from black
- (c) dissolve a signal to or from the effects amplifier

(a) to dissolve one signal to another, set the Wiper Controls ⑥ to either A or B and feed one input to the respective bus by pressing the appropriate A or B bus Selector Button ③ or ⑤. Similarly, select the other input on the C bus by pressing the appropriate button. With both fader controls in the upper position the A or B bus input will be displayed on the PROGRAM monitor. To dissolve to the C bus, slowly move both Fader Controls ⑧ simultaneously to the lower position.

(b) to fade to or from black, set up the conditions described in (a) above. With both fader controls in the upper position the A or B bus input will be displayed on the screen. Lift the lock that couples the fader controls. Moving only the

right fader control to the lower position will dissolve the A or B bus to black. With both fader controls in the lower position the C-bus input will be displayed on the screen. Moving only the left fader control to the upper position will dissolve the C channel to black.

Fading to or from black may also be accomplished as described in (a) above by dissolving both fader controls to or from an unused input if one is available.

(c) to dissolve an input to or from the effects amplifier, set up the desired effect on the A and B buses and adjust effects controls accordingly. (Instructions for setting up various effects are covered in the following pages). Supply a signal to the C bus. Moving both fader controls toward A/B will dissolve the C bus input to the preset effect on the A/B bus.

Superimposing

Superimposures of A and/or B buses and C bus may be obtained by setting both fader controls at mid-position. At this point, 50% of both inputs are present at the output so that the output signal remains within amplitude specifications. By splitting the controls, one signal can be accented. Bear in mind, however, that when both faders are set at maximum, the full output of both channels is present and the output signal amplitude is virtually doubled. Although an overload of up to 20% is generally tolerable it could create problems in certain system configurations.



A bus

C bus

Typical Superimposure



A bus

B bus

Superimposure exhibiting slight overload
(Fader controls split)



Superimposure exhibiting 100% overload
(Both fader controls set at maximum)

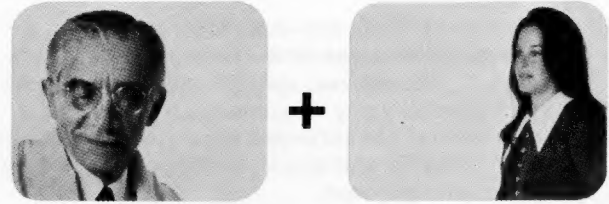
EFFECTS AMPLIFIER FUNCTIONS

(Circled numbers refer to callouts in the illustration on page 4)

Special effects are set up on the A and B buses.

Corner Inserts

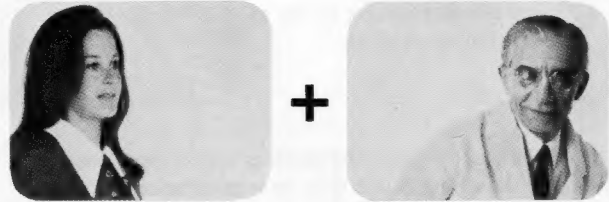
To display the A-bus signal in any corner of the B-bus field, press the desired Effects Selector ④ as depicted beneath the button. Manipulate both Wiper Controls ⑥ to set the boundaries of the corner insert. Note that the controls may be separated and operated independently to increase or decrease the boundary of either signal. When the desired effect is achieved, as viewed on the Preview Monitor (PREVIEW Selector ② set to A/B), supply the signal to the line output by sliding the Fader (PROGRAM) controls ⑧ to A/B.



Corner Insert

Wipes

Apply the two inputs to be displayed to buses A and B by pressing the appropriate selector buttons ③ and ⑤. Press one of the Effects Selectors ④. Separate the lock joining the two Wiper Controls ⑥ and adjust controls to display the desired effect; the effect may be viewed on the Preview monitor by pressing the A/B PREVIEW Selector ②. Supply the signal to the line output by setting the Fader (PROGRAM) controls ⑧ to A/B.



Horizontal wipe

SPECIFICATIONS

ELECTRICAL

Power Input

120V AC $\pm 10\%$ AC, 50/60 Hz, 20 VA max. 3-wire parallel ground plug. Fuse, 1/2 A slo-blo

Video Inputs

Four composite, including one optional gen-lock input, 0.5 - 2.0 V peak-to-peak, 75 Ω

Gen-Lock Input (Monitor 4)

0.5 - 2.0 volts peak-to-peak, 75 Ω or high impedance (switchable) for loop-through

Fader Control

Split fader arms are supplied for fade in, fade out, lap dissolve and superimposition

Special Effects

Vertical wipes, Horizontal wipes, Corner inserts (wipe in from any one of the four corners).

Vertical and horizontal locking split-wipe lever arms are supplied for control of wipe functions. These are arranged so that a smooth corner wipe may be made with one hand operation.

Sync

Internal, 2-to-1 interlace, crystal-controlled (EIA RS-330 industrial). Clock frequency 2.6 MHz.

External, accepts HD & VD, 2-6 V (p-p). Terminated in 75 Ω .

Gen Lock lamp on front panel indicates that source is present and locked; automatic switchover to internal sync generator when source is absent or not locked.

Video Characteristics

Video Switching

FET cross-point, vertical interval
Momentary pushbuttons illuminated when latched (#47 lamp).

Freq. Response

6 MHz $+0.5$ dB
 -3 dB

Differential Gain

Less than 3%

Differential Phase

Less than 2.5%

Crosstalk

Mixer amp, 40 dB down at 3.58 MHz
Effects amp, 40 dB down at 3.58 MHz; 46 dB at 150 kHz

Tilt

Less than 3% at 60 Hz

Video Outputs

Preview outputs (2), composite, black negative, 75 ohms. Isolation better than 25 dB.

Program output (1), same specifications as above

MECHANICAL

Connectors

Video input, 6-pin Hirschmann (4); Gen-lock, UHF (1);
Video output, UHF (4);
Sync input, 6-pin Hirschmann;
AC convenience outlet, 3-wire 3A max

Dimensions

5-1/2" x 15-3/4" x 9-7/8"
(h, w, d)

Weight

11 lb.